

The ASME Computers and Information in Engineering Division

Established: 1980

Vision Statement

Provide a forum for enhancing the practice of engineering by understanding the application of emerging computational and information technologies that impact critical engineering issues of representation, modeling and simulation, product design and product development, exchange, management and integration of information throughout the entire engineering product and process life-cycle.

Mission Statement

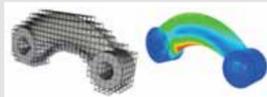
Enhance the practice of engineering through the dissemination of emerging technology and knowledge that will enhance the integration of mechanical engineering, software engineering, and computer engineering.

Technical Committees

- Advanced Modeling and Simulation (AMS)
- Computer-Aided Product and Process Development (CAPPD)
- Systems Engineering, Information and Knowledge Management (SEIKM)
- Virtual Environments and Systems (VES)

Advanced Modeling and Simulation (AMS)

- The AMS Technical Committee is interested in bringing together researchers in the area of numerical and computational methods related to modeling and simulation for engineering science applications. Topics include but are not limited to:
 - Numerical modeling, simulation and analysis techniques
 - Mesh generation, adaptation and refinement schemes
 - XFEM and Generalized FEM techniques
 - Data exchange technologies for modeling and simulation
 - Inverse Methods and Model Identification
 - Model Validation, Verification and Accreditation
 - High Performance Computing
 - Agent-Based Modeling
 - Computational Modeling of Energy Systems



Computer Aided Product and Process Design (CAPPD)

- The CAPPD Technical Committee provides a venue for researchers developing computer methods, algorithms and software for product and process design. Topics include but are not limited to:
 - Computer-Aided Manufacturing
 - CAD & Geometric Modeling
 - Design Automation
 - Collaborative and Concurrent Engineering
 - Computer-Aided Industrial Design
 - Emotional Engineering



Systems Engineering, Information and Knowledge Management (SEIKM)

- The SEIKM Technical Committee of the CIE Division is broadly focused on three general domains: representations, technologies and applications, as they apply to the integration of systems engineering and knowledge & information management. Topics include but are not limited to:
 - Information Modeling and Exchange
 - Knowledge-capture and Reuse
 - Product Lifecycle Management
 - Systems Engineering
 - Business Process Design, Integration, Deployment and Management
 - Uncertainty in Information and Knowledge



Virtual Environments and Systems (VES)

- The Virtual Environments & Systems (VES) Technical Committee aims at bringing together researchers in the area of virtual & augmented reality, haptics, human-computer interaction & volumetric, air-borne & tangible visualization. Topics include but are not limited to:
 - Virtual/Augmented Reality in Training & Education
 - Virtual Reality Applications in Product & Process Design
 - Virtual Manufacturing Application
 - Ergonomic Modeling
 - Haptic Interfaces & Human-Computer Interaction
 - Stereoscopic and Volumetric Visualization Technologies
 - Airborne Projective and Constructive Visualization Technologies
 - Innovative Applications and Best Practices



Conferences and Technical Meetings

ASME Computers and Information in Engineering (CIE) Conference

- Technical paper (research, survey and application) sessions
- Panel and poster sessions
- Tutorials and workshops
- Active participation from government, academia, and industry
- Co-sponsored with other ASME technical units having shared interests
- Sessions in ASME International Mechanical Engineering Congress and Exposition
- Participation with related international conferences in the Americas, Europe and Asia

Publications

ASME Journal of Computing and Information Science in Engineering

- Cosponsored with Design Engineering Division
- Already a recognized ASME Transactions Journal
- Multi-disciplinary scope, focuses on the intersection between mechanical engineering, computer and software engineering, and information science
- Approved for listing in journal indexing services in 2004

Strengths and Opportunities

- The field of attention of the division can be even more influential in the 21st century
- Dedicated and committed leadership is able to take challenges
- Relatively large member base that can be extended internationally
- The division and technical committee leadership represents academia, government, and industry
- Division's core strength resides in addressing issues at the intersection between mechanical engineering, computer and software engineering, and information knowledge engineering
- The division can offer new products and services for the membership

Strategies for Improvement

- Pursue more active participation from members
- Increase participation from industry members
- Provide better support to industry
- Increase CIE-sponsored/related activities at regional and local chapter levels
- Develop a multi-year strategic plan
- Provide support to international members and collaborations
- Increase number of committee-level awards
- Obtain additional funding for division-wide and committee-level awards

Division Goals

- Increase membership and member participation
- Continuous improvement and monitoring of existing technical committees
- Aligning division's strategic plan with the multi-year development goals of the technical committees
- Identify outreach activities to engage members at the regional and chapter levels and encourage CIE-related activities at these and all levels within ASME
- Develop CIE-related thrusts within ASME's Education and Training program, short courses, in-company programs, technology seminars and distance learning programs.

CIE Division Awards

- Lifetime Achievement Award
 - to recognize a person who has had a significant impact on the use of computers in engineering practice and/or education
- Young Investigator Award
 - to recognize a promising young investigator, below the age of 35 years, who is making outstanding contributions to the progress in the application of computers in engineering
 - 2010 Recipient:
 - Dr. Jitesh H. Panchal, Assistant Professor, Washington State University
- Leadership Award
 - to recognize an individual in industry/government for outstanding leadership in advancing the use of computers in engineering practice
 - 2010 Recipient:
 - Dr. Robert G. Kiggans, Vice Chairman, ATI Board of Directors
- Additional Recognition
 - to recognize an individual for dedicated service to the division
 - 2010 Recipient:
 - Dr. David Lee, Space Vehicle Systems Engineer, Northrop Grumman
 - Dr. Yong Se Kim, Professor, Sungkyunkwan University